SiRF Star III GPS Bluetooth® Receiver with

Data Logger Functionality

User's Manual

Table of content

1. Read Me First

1. The battery must be charged for at least 8 hours for the 'INITIAL' use. The LED2 (GREEN) will turn off after 3 hours' charging, please keep on charging for 5 more hours. Thereafter, for each time's battery charging please fully charge for 3 hours.
2. We strongly recommend that remove the battery if the device will not be used for over 2 weeks. Do not remove the battery within 2 weeks.
3. For fast data tracking purpose staying still before get fixed is recommended. (FIX then GOES!!)
4. Please note that the device will only receive the signal under the open sky. In this case, putting the device under the windshield is recommended.

2. Introduction

The SiRF Star III BT GPS receiver is the industry leading Bluetooth GPS receiver that offers simultaneous use of real-time GPS reception and data logging. It features extended battery life, (up to 17 hours) with rechargeable battery and increased memory size. (4MB) It can interface with any Bluetooth-enable mobile device to provide GPS data to applications.

The SiRF Star III BT GPS receiver is capable of keeping up to 250,000 records or positions, including longitude, latitude, speed, UTC, and tag data. The log file can be downloaded for analysis via high-speed USB connection, the location histories can also be exported to mapping software such as Google Earth or TrackMaker.

It can be used as a wireless and mobile data logger for asset tracking, fleet management, heavy logistics and dangerous goods transportation.

3. Box Contents

1. GPS Bluetooth Receiver
2. Lithium-ion rechargeable battery
3. Car charger
4. AC adapter
5. CD (Documentation)
6. Anti-slip rubber pad

BT GPS Receiver

AC Adaptor

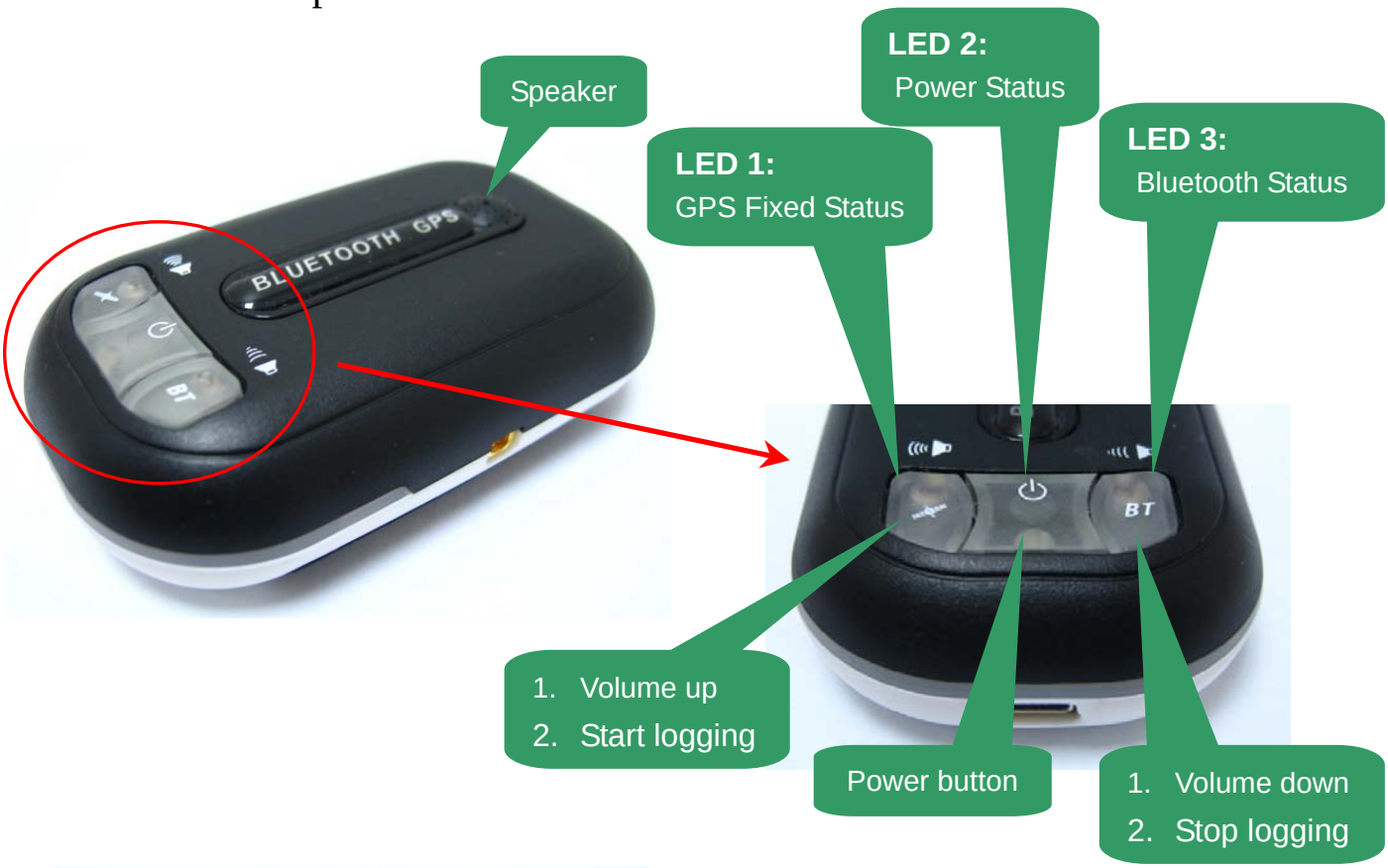
Car Charger

Li-ion rechargeable Battery

CD (Documentation)

Anti-Slip Rubber Pad

4. Hardware Description



5. LED Indicator

Power on:

LED1: GPS Fix Status	LED2: Power Status	LED3: Bluetooth Status
Red (OFF) GPS not fixed yet!	**Green (ON)** Blinking for every 1 second	**Blue (ON)** Blinking very quickly (in paring mode)

GPS get fixed/Bluetooth connected:

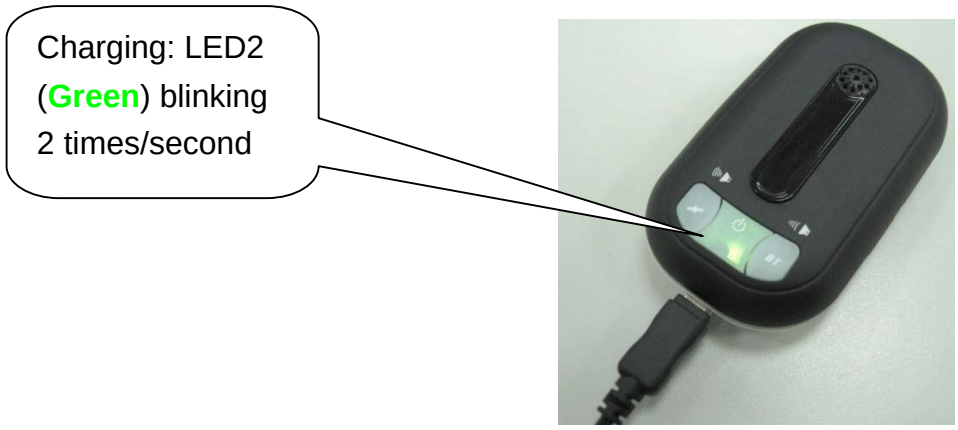
LED1: GPS Fix Status	LED2: Power Status	LED3: Bluetooth Status
Red (ON) Blinking quickly	**Green (ON)** Blinking for every 1 second	**Blue (ON)** Blinking for approx. 1 second

Low battery: Notified by voice "battery low" when low battery; notified by "beep" sound and go to sleep mode if battery is too low to support operation

Charging: LED2 (GREEN) blinking 2 times/second

Battery is fully charged: 1. LED2 (GREEN) turns off if charged by AC adaptor. 2. LED2 (GREEN) blinking for every 1 second if charged by car charger

BT GPS Receiver will automatically turns on if powered by AC adaptor



GPS Bluetooth operates on OS with Bluetooth function that supports SPP

In order to avoid any unexpected problem,
DO NOT attempt to change the default baudrate

6. Connecting to your Bluetooth PDA

1. Turn on the Bluetooth GPS Receiver

Press power button for 1 second, the LED2 (Power Status LED) and LED3 (Bluetooth Status) start blinking. (With voice alarm “satellite positioning”) satellite fixed

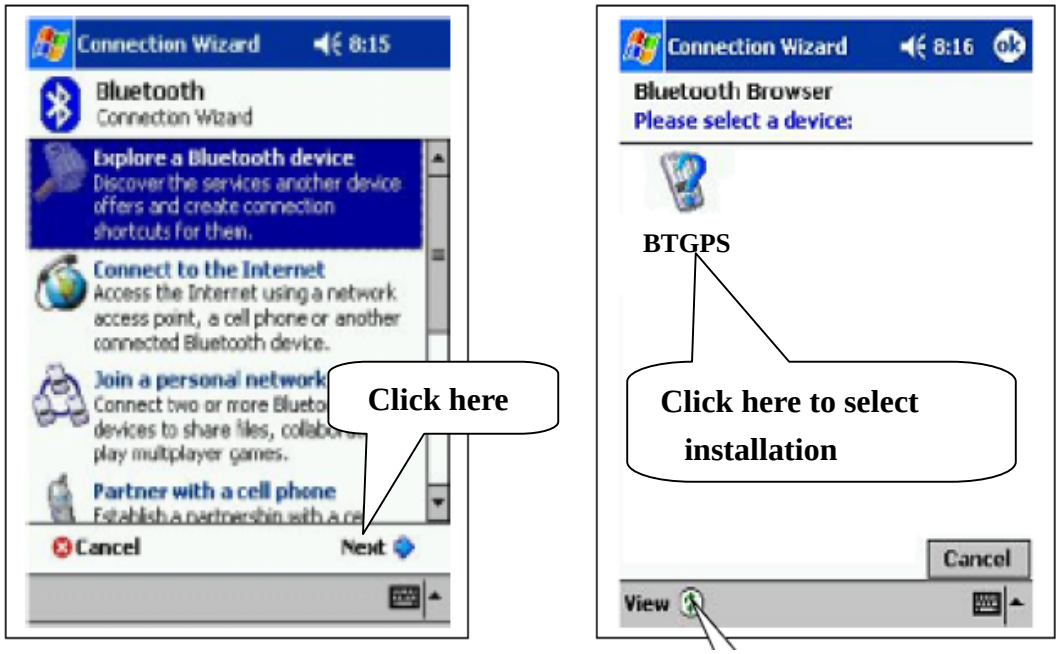
2. Activate Bluetooth function of your PDA / smart phone

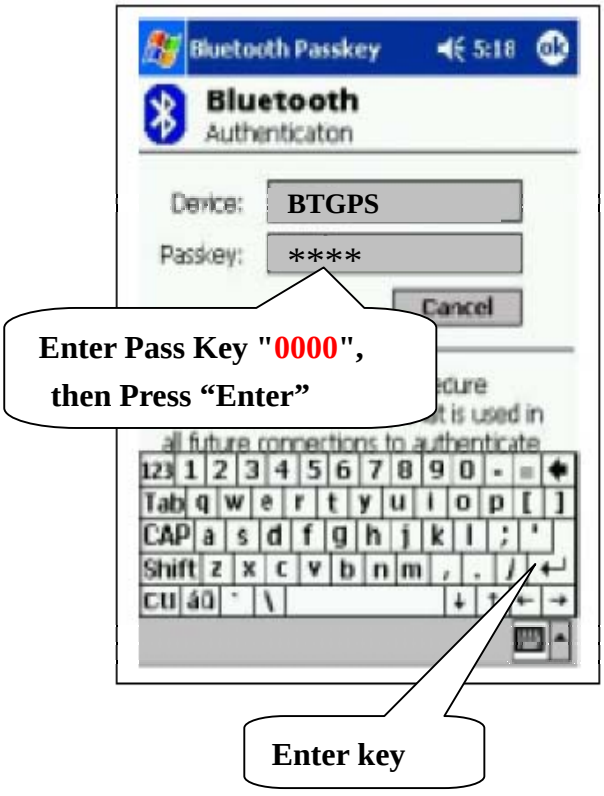
Prior to activating the Bluetooth function of your PDA / smart phone, please make sure the device is equipped with Bluetooth function, and the driver software has been installed.

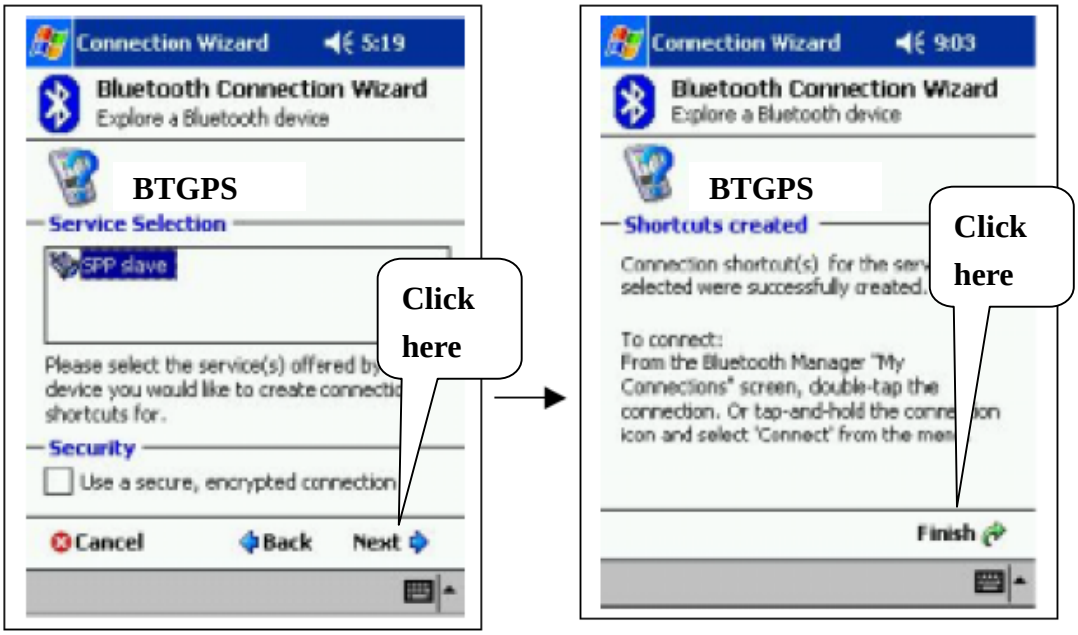
3. Activate Bluetooth Manager & Established New Connections

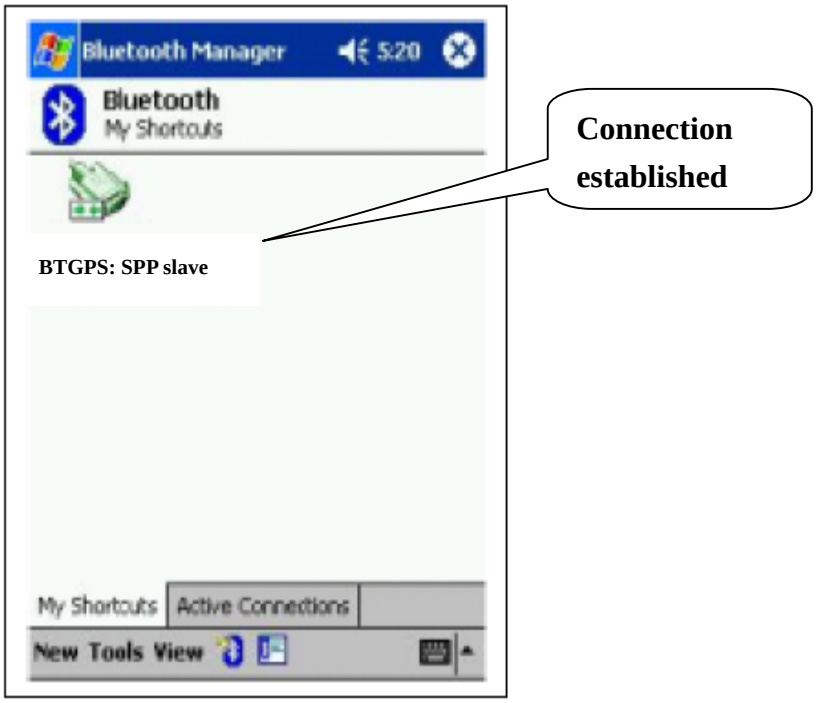
Illustrations by using HP 2100 PDA shown as follows:

I. First, find the device with which you wish to establish connection.
II. Open “Bluetooth Manager” on your PDA.
III. Press “New”.
IV. Press "Connect”.


Connection Wizard
8:15
Bluetooth
Connection Wizard
Explore a Bluetooth device
Discover the services another device offers and create connection shortcuts for them.
Connect to the Internet
Access the Internet using a network access point, a cell phone or another connected Bluetooth device.
Join a personal network
Partner with a cell phone
Cancel
Next
Click here
Connection Wizard
8:16
Bluetooth Browser
Please select a device:
BTGPS
Click here to select installation
Cancel
View


Bluetooth Passkey
5:18
Bluetooth
Authenticaton
Device:
BTGPS
Passkey:
****
Cancel
Enter Pass Key "0000", then Press "Enter"
Enter key





The connection between BT GPS Receiver and PDA has been successfully established

4. Turn off the BT GPS Receiver

Press power button for 1 seconds, LED goes off.

We strongly recommend that close the E-map before turning off the BT GPS Receiver, in order to avoid any possible PDA /Smart phone freeze

7. Operation Modes

a. Idle Mode

"***Power Button***": to power on the device by *short pressing* the power button

b. Normal (GPS Bluetooth) Mode

"***Power Button***": switching "GPS with Bluetooth" or "GPS only" by *short pressing* the power button
"***Power Button***": turn off the device by *long pressing* the power button
"***Volume Up Button***": volume up by *short pressing* the button
"***Volume Down Button***": volume down by *short pressing* the button
"***Volume Up Button***": tag maker start by *long pressing* the button
"***Volume Down Button***": tag maker end by *long pressing* the button

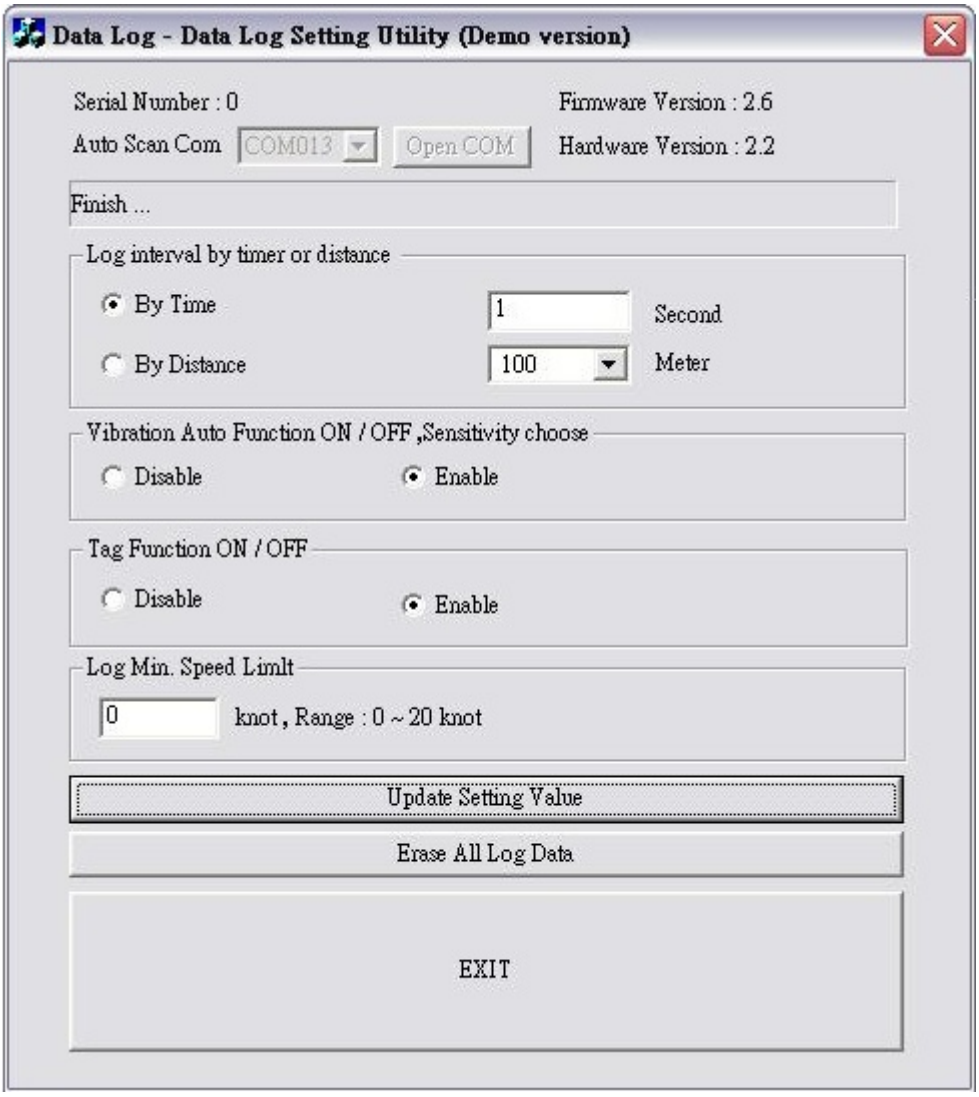
c. G-mouse Mode: (GPS is get fixed)

"***Volume Up Button***": volume up by *short pressing* the button
"***Volume Down Button***": volume down by *short pressing* the button
"***Volume Up Button***": tag maker start by *long pressing* the button
"***Volume Down Button***": tag maker end by *long pressing* the button

8. Software Utility

A. Set Data Log Utility

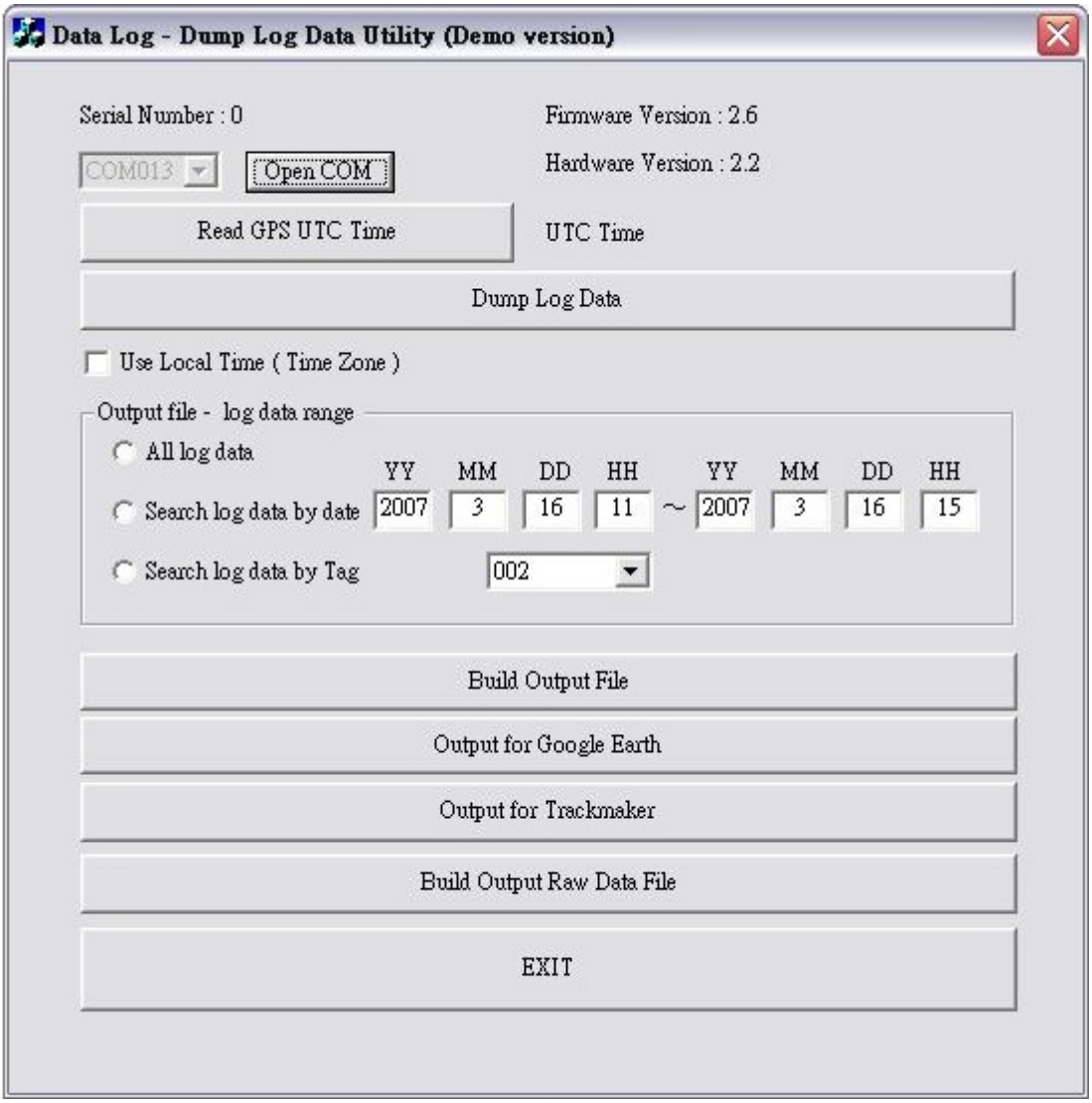
1. Please choose "***Set Data Log Utility***" folder
2. Execute "***Set_Log_Data.exe***"
3. Please make sure that the device is well-connected to your PC by USB cable, the system will get ***COM port*** automatically
4. Select "***Log Interval***"
   a. "By Time": log interval by time
   b. "By Distance": log interval by distance
5. Select "***Vibration Mode***"
   a. "Disable": Vibration disable
   b. "Enable": Vibration enable
6. Select "***Tag Function***"
   a. "Disable": Tag function disable
   b. "Enable": Tag function enable
7. Select "***Log Min. Speed Limit***"
   If the speed (NMEA output) is beyond the predefine limit, (to be set by users) the device will stop logging data
8. Select "***Update Setting Value***" for saving your settings
9. Select "***Erase All Log Data***" to erase all log data
10. Select "***EXIT***" to exit Set Data Log Utility



Data Log Setting Utility

B. Dump Log Data Utility

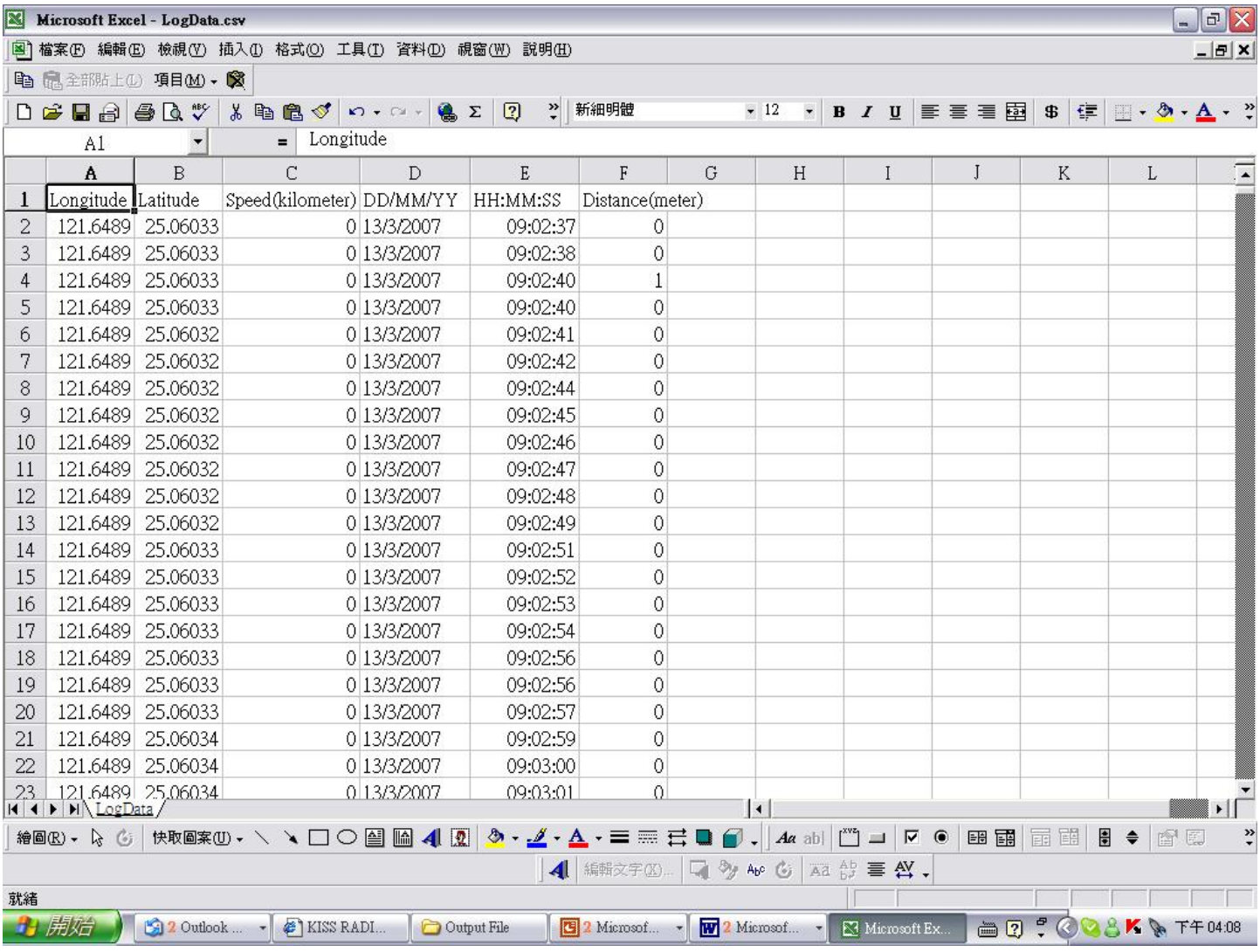
1. Please choose "***Dump Log Data utility***" folder
2. Execute "***Dump_Log_Data.exe***"
3. Please make sure that the device is well-connected to your PC by USB cable, the system will get ***COM port*** automatically
4. Press "***Dump Log Data***" to dump all log data from device to SortDB.sr
5. Select "***Use Local Time (Time Zone)***" to convert UTC to your local time zone
6. Select "***Output File Mode***":
    a. "***All log data***": output all log data
    b. "***Search log data by date***": output log data under the certain range
    c. "***Search log data by Tag***": output log data under the certain tag
7. Select "***Build Output File***": *.CSV for Excel will be created by selecting this output mode
8. Select "***Output for Google Earth***": *.KML for Google Earth will be created by selecting this output mode
9. Select "***Output for Trackmaker***": *.TXT for Trackmaker will be created by selecting this output mode
10. Select "***Build Output Raw Data File***": *.dat (NMEA output) will be created by selecting this output mode
11. Select "***EXIT***" to exit Dump Log Data Utility



Dump Log Data Utility

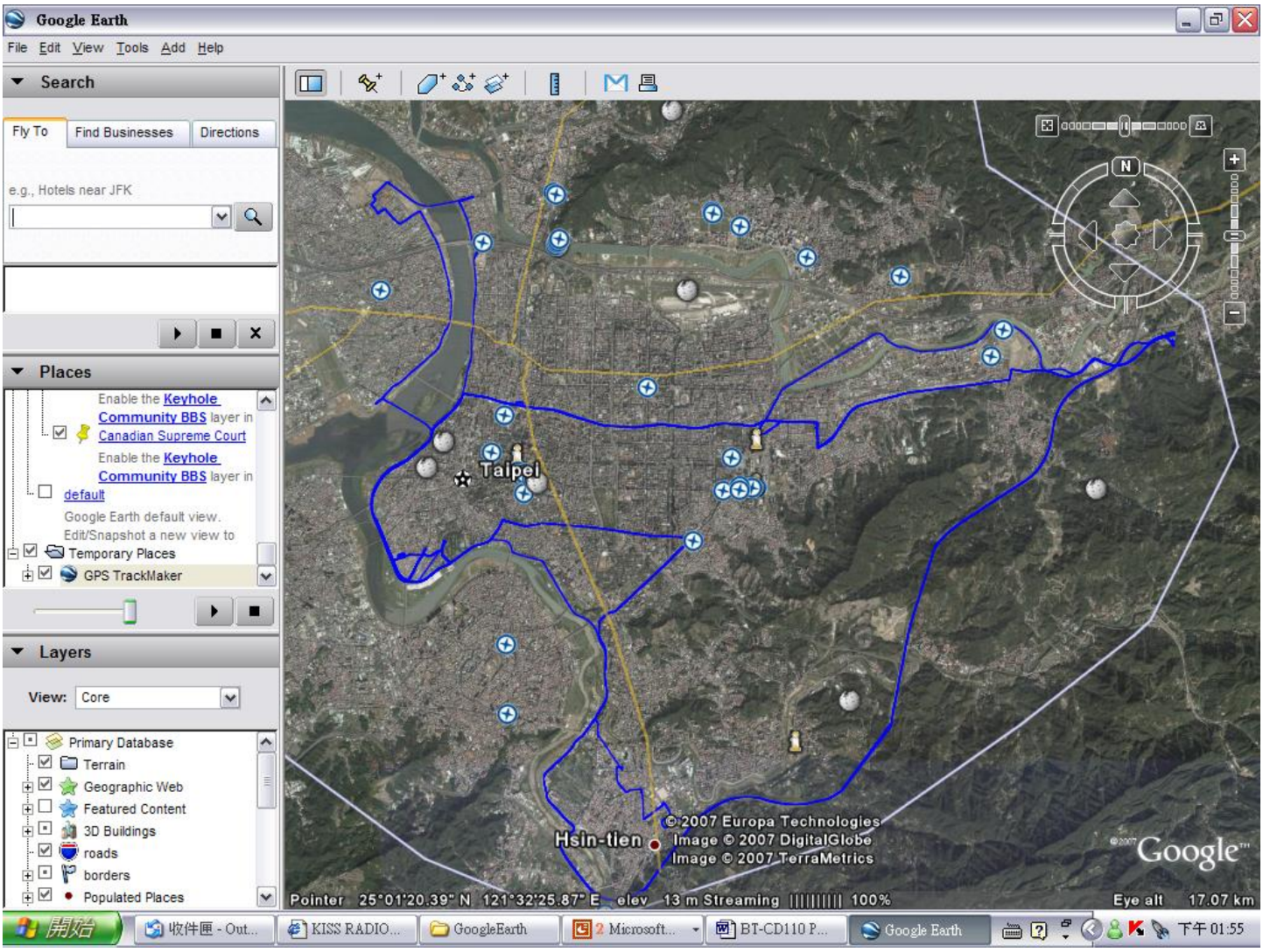
9. Output Formats

*a. *.CSV for Excel*

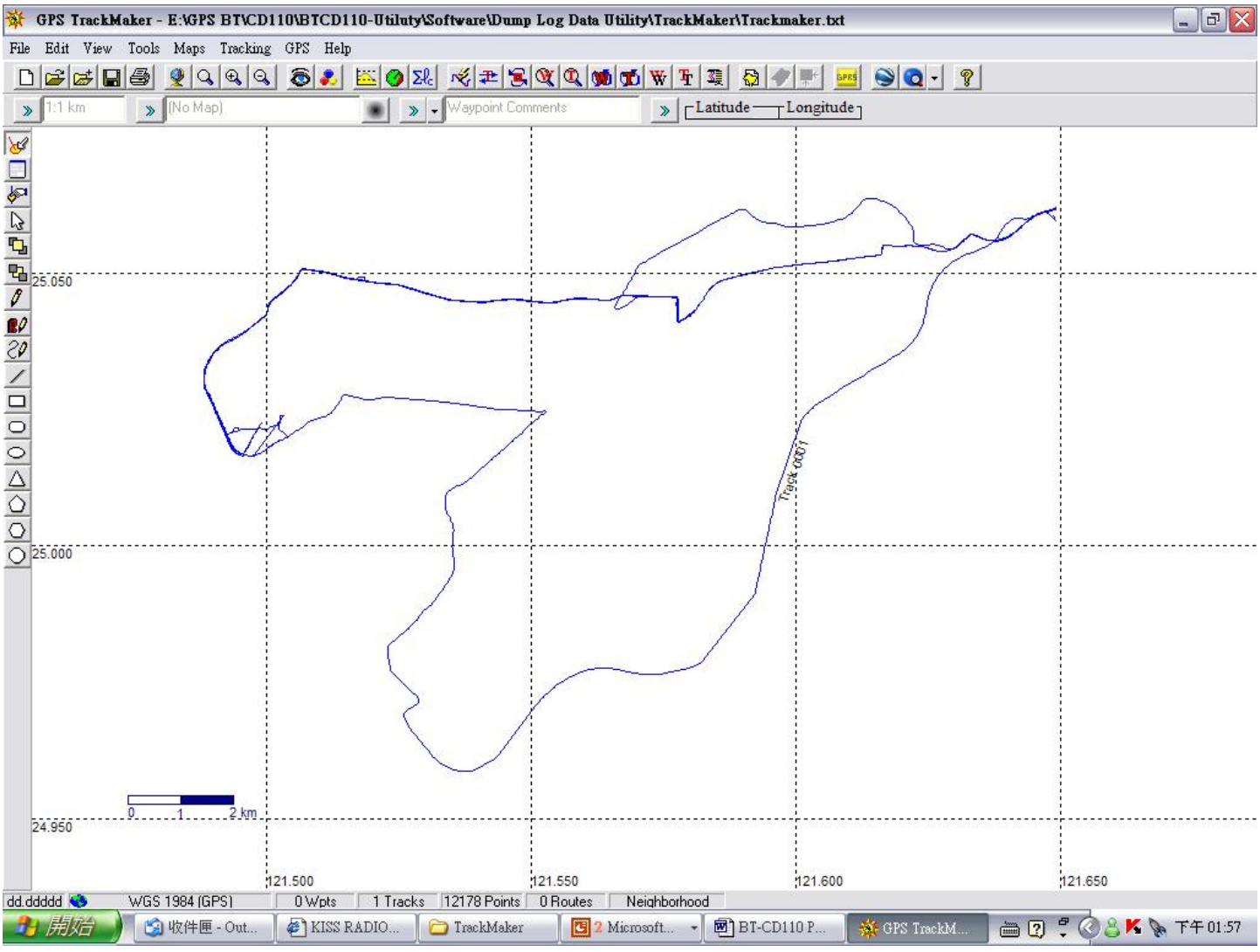


	A	B	C	D	E	F
1	Longitude	Latitude	Speed(kilometer)	DD/MM/YY	HH:MM:SS	Distance(meter)
2	121.6489	25.06033	0	13/3/2007	09:02:37	0
3	121.6489	25.06033	0	13/3/2007	09:02:38	0
4	121.6489	25.06033	0	13/3/2007	09:02:40	1
5	121.6489	25.06033	0	13/3/2007	09:02:40	0
6	121.6489	25.06032	0	13/3/2007	09:02:41	0
7	121.6489	25.06032	0	13/3/2007	09:02:42	0
8	121.6489	25.06032	0	13/3/2007	09:02:44	0
9	121.6489	25.06032	0	13/3/2007	09:02:45	0
10	121.6489	25.06032	0	13/3/2007	09:02:46	0
11	121.6489	25.06032	0	13/3/2007	09:02:47	0
12	121.6489	25.06032	0	13/3/2007	09:02:48	0
13	121.6489	25.06032	0	13/3/2007	09:02:49	0
14	121.6489	25.06033	0	13/3/2007	09:02:51	0
15	121.6489	25.06033	0	13/3/2007	09:02:52	0
16	121.6489	25.06033	0	13/3/2007	09:02:53	0
17	121.6489	25.06033	0	13/3/2007	09:02:54	0
18	121.6489	25.06033	0	13/3/2007	09:02:56	0
19	121.6489	25.06033	0	13/3/2007	09:02:56	0
20	121.6489	25.06033	0	13/3/2007	09:02:57	0
21	121.6489	25.06034	0	13/3/2007	09:02:59	0
22	121.6489	25.06034	0	13/3/2007	09:03:00	0
23	121.6489	25.06034	0	13/3/2007	09:03:01	0

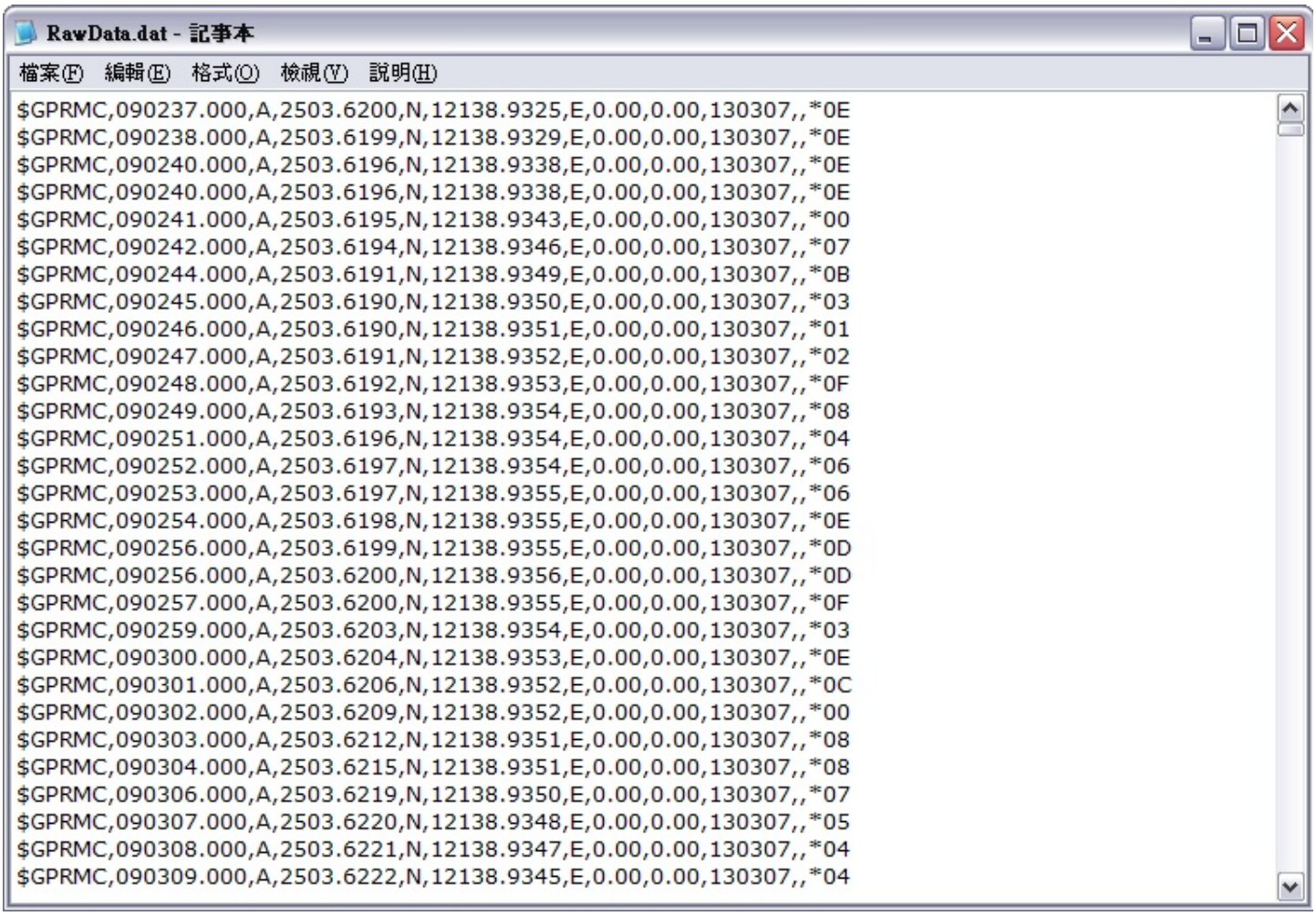
b. **.KML for Google Earth*



c. **.TXT for Trackmaker*



d. **.dat for NMEA output*



10. USB Driver

The USB driver is also included in this CD. Please choose this folder and execute the setup.exe for installation.

11. DLL (sample code)

The DLL (sample code) is also included in this CD. There are two different examples:

a. DLL – VB

The code can be generate by using Visual Basic

b. DLL – VC

The code can be generate by using Visual C

12. Specifications

GPS Features

Chipset	SiRF Star III
Frequency	L1, 1575.42MHz
C/A Code	1.023MHz chip rate
Channels	Supports 20 channels
Antenna (Internal)	Built-in low noise patch antenna
	External MMCX antenna port

Sensitivity

To – 159dBm Tracking, Superior Urban Canyon Performance

Time to First Fix (TTFF)

Cold Start	42 sec, average
Warm Start	38 sec, average
Hot Start	1 sec, average
Reacquisition	0.1 sec
Update Rate	1 Hz (max.)

Accuracy

Position	5 – 25m CEP without SA
Velocity	0.1m/sec, without SA
Time	1μs synchronized to GPS time

Power

Built-in rechargeable 1100mAh Li-ion battery and 5V DC input

Operation Current	65mA (Typical)
Operation Time	17hrs, fully charged, in continuous mode
Sleeping Mode	Sustain more than 2000 hours
Charging Time	3.0hrs. (Typical)

Environmental Characteristics

Operating Temperature	- 20°C to + 60°C
Storage Temperature	- 20°C to + 85°C

Datum

WGS-84

Dynamic Conditions

Altitude	<18,000 m (60,000feet)
Velocity	<515 m/s (1000 knots)
Acceleration	<4G
Motional Jerk	20m/sec^3 max.

Interface

Communication Protocol: Communicate with host platform via Bluetooth (class 2) serial port profile

Bluetooth communication distance 10meters (Typical)

GPS Protocol: Default: NMEA-0183 - RMC

Data bit: 8, stop bit: 1 (Default)

Device Size and Weight

77.4 (L) X 46.3 (W) X 23.2 (H) mm

3.05 (L) X 1.82 (W) X 0.90 (H) inch

56.5g (battery included)

Accessories

Car charger (12V in, 5V output)

AC adaptor (5.3V output, 500mA)

Data Logger

Log 249,856 records in flash memory (4M bytes)

Log data: NMEA format (Longitude, Latitude, Speed, UTC, Tag)

Output data format: WGS84 2-degree transverse mercator

Mapping software: a. Google Earth b. TrackMaker c. *.csv (logdata.csv)

Log interval: by time (1sec~30mins) or distance (2~65535meters)

Vibration setting: disable/high/middle/low sensitivity

Goes to sleep mode if vehicle stays still for 15 minutes

Auto power on in 3 sec. when detecting vibration